

Review of the biology and host plants of the Australian longicorn beetle *Amphirhoe decora* Newman (Coleoptera: Cerambycidae)

With 1 Figure

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Abstract: The biology and host plants of the Australian longicorn beetle, *Amphirhoe decora* Newman (Coleoptera: Cerambycidae) are reviewed from the published literature and from previously unpublished data of the senior author. The presently known larval host plants are *Acacia aulacocarpa* A. Cunn. ex. Benth., *A. dealbata* Link, *A. maidenii* F. Muell., *A. melanoxyton* R. Br. and *A. sophorae* (Labill.) R. Br. (Mimosaceae). The adults are anthophilous and are known to visit the flowers of *Bursaria spinosa* Cav. (Pittosporaceae) and *Angophora woodsiana* F. M. Bail. (Myrtaceae) in New South Wales and Queensland respectively.

Zusammenfassung: Die Biologie und die Wirtspflanzen des australischen Bockkäfers *Amphirhoe decora* Newman (Col.: Cerambycidae) werden anhand der Literatur und aufgrund bisher unveröffentlichter Daten vorgestellt. Die gegenwärtig bekannten Wirtspflanzen der Larven dieser Art sind *Acacia aulacocarpa* A. Cunn. ex Benth., *A. dealbata* Link, *A. maidenii* F. Muell., *A. melanoxyton* R. Br. und *A. sophorae* (Labill.) R. Br. (Mimosaceae). Die Käfer sind anthophil und als Besucher der Blüten von *Bursaria spinosa* Cav. (Pittosporaceae) und *Angophora woodsiana* F. M. Bail. (Myrtaceae) in Neusüdwesten bzw. Queensland bekannt.

Introduction

Amphirhoe decora Newman (Coleoptera: Cerambycidae) is an attractive, slender longicorn beetle widely distributed in eastern and southern Australia (McKEOWN 1947). The adults have a reddish-brown head and antennae, blackish pronotum and a narrow body with blackish elytra which have a sublateral white/cream stripe and a reddish-brown humeral to subhumeral region. The legs are very slender and the distal half of the femorae are swollen (Fig. 1). Despite the distinctiveness of this species and its widespread distribution, surprisingly little has been recorded on the biology and habits of *A. decora*. Both McKEOWN (1947) and DUFFY (1963) in their extensive taxonomic and biological accounts of the Australian cerambycid fauna, fail to provide any biological data or host plants for the species. Since then a number of observations have been published. These are reviewed below along with additional, previously unpublished data of the senior author.

Larval Host Plants

The first published larval host record for *A. decora* appears to be that of WILLIAMS (1985) who recorded the species from a dead, dry branch of *Acacia melanoxyton* R. Br. (Mimosaceae) from rain forest/wet sclerophyll forest near Lansdowne, New South Wales (31° 36' S, 152° 32' E). No other details were provided.

The next published record was that of HOCKEY & DE BAAR (1988) who bred material of *A. decora* from a dead, fallen tree of *Acacia aulacocarpa* A. Cunn. ex Benth. (Mimosaceae) from Long Pocket, Brisbane, Queensland (27° 28' S, 153° 01' E). No reference was made to any previously published data on *A. decora*.



Fig. 1. Adult of *Amphirhoe decora* Newman (Cerambycidae) on the flowers of *Angophora woodsiana* F. M. Bail. (Myrtaceae) at Griffith University, Brisbane, Queensland.
Body length: 14.0 mm (Photo: T. J. HAWKESWOOD)

Finally, BASHFORD (1991) recorded two adults of *A. decora* from *Acacia dealbata* Link (Mimosaceae) from Woodsdale, Tasmania (42° 28' S, 147° 35' E), during 1985–87; the species was one of the rarer species encountered. No other details on the biology of the species were provided.

On 24 September 1987, the senior author extracted one live, active adult of *A. decora* from a dead branch (12 mm in diameter) of *Acacia sophorae* (Labill.) R. Br. (Mimosaceae), which had been collected on 15 September 1987 from coastal heathlands growing on sand dunes near Hastings Point, north-eastern New South Wales (28° 20' S, 153° 34' E). The adult measured only 9.6 mm in total body length (antennae not included in this measurement); normal size of adults is 14.0–16.0 mm, with the females usually larger than the males. The specimen was extracted from below the outer bark in the hard wood and occupied a narrow chamber about 12 mm long.

During January 1994, TJH observed a number of males and females of *A. decora* mating on or flying around logs and sawn timber of *Acacia maidenii* F. Muell. (Mimosaceae) near Nimbin, north-eastern New South Wales (c. 28° 25' S, 153° 20' E). The beetles (mostly males), were very active in the hot temperatures (25°–28 °C) and were mating on the logs in semi-shade. Some of this timber was being used for firewood and at the time, was being split by the senior author for use in a barbecue and fireplace. One sawn piece of wood yielded two adults in their pupal chambers ready to emerge. The pupal chambers were situated about 3–5 mm below the bark layer and measured 12–15 mm in length.

Adult Host Plants

During the summer months of January to February, 1979, TJH collected and observed a few adults of *A. decora* on the flowers of *Bursia spinosa* Cav. (Pittosporaceae) growing in semi-disturbed sites in rugged bushland (open woodland) at Dangars Falls, near Armidale,

north-eastern New South Wales (c. 30° 35' S, 151° 55' E). Pollen loads were examined on the beetles and reported in a study of the pollinators/insect visitors of *B. spinosa* in the Armidale area (HAWKESWOOD 1990).

During December 1978, one adult of *A. decora* was observed by the senior author feeding on the nectar of *B. spinosa* growing in a woodland community adjacent to a road in the Stanthorpe area, south-eastern Queensland (c. 28° 40' S, 151° 55' E). No others were noticed during the times when observations on other *B. spinosa* plants were undertaken.

During December 1985, one large female *A. decora* was collected by the senior author from the open flowers of *Angophora woodsiana* F. M. Bail (Myrtaceae) growing in closed woodland on the Griffith University grounds (Toohey State Forest adjoining), Brisbane, south-eastern Queensland (c. 27° 28' S, 153° 03' E). The specimen was later photographed and is illustrated here as Fig. 1. No other *A. decora* were noticed during several weeks of collecting in the area.

Discussion

The data presently available indicate that *A. decora* is oligophagous in the larval stage on at least five species of *Acacia* (Mimosaceae). This suggests a close relationship with this genus of plants as noted with other species of Australian Cerambycidae (e.g. HAWKESWOOD 1992, 1993) and clearly illustrates the importance of *Acacia* as food not only for higher animals but for insects as well. The adults of *A. decora* appear to be anthophilous on other plants and have yet to be recorded visiting flowers of their *Acacia* larval host plants. Most of these *Acacia* species flower during the cooler months of June–September well before the emergences of the adults so are unlikely to be pollinated by this beetle.

During examination of the collection of the Queensland Department of Primary Industries at Indooroopilly, Brisbane (QDPI) during 1983, the senior author noticed one adult which had been collected from Biloela, central Queensland (24° 23' S, 150° 30' E), on 10 January 1937 by G. A. Currie, bearing the quotation "ex *Portulaca* sp.". *Portulaca* (Portulacaceae) are succulent, glabrous herbs usually found growing in sandy, hot, arid habitats. There are at least 15 described Australian species of *Portulaca*, with at least 8 species occurring within Queensland. No Australian Cerambycidae have been recorded previously from *Portulaca*. The stems of *Portulaca* contain large amounts of salt in solution, and as breeding sites for insects, would appear very unsuitable for the successful development of their larvae. However, it is possible that the adult from Biloela was extracted from the roots of the plant, or even more likely, was collected from flowers of *Portulaca*. As noted above, *A. decora* does visit native flowers for food (nectar and possibly pollen) so the possibility of *Portulaca* flowers being utilised as a food source cannot be entirely ruled out. However, in the light of the *Acacia* larval hosts noted above, it would appear conclusive that *A. decora* breeds in hardwood timbers like most other Australian longicorns and not in semi-succulent or succulent stems of herbaceous plants. Therefore, until further observations are published, the purported larval host record of *Portulaca* must remain tentative, although it is interesting to note in any case.

Adults of *A. decora* are very active on flowers or when flying to mating sites in semi-shade or in full sunlight. Their agitated antennal waving and jerky movements on flowers are reminiscent of the behaviour of other Australian cerambycids known to be anthophilous (e.g. *Chlorophorus curtisi* (Laporte & Gory) (HAWKESWOOD & DAUBER 1990) and *Aridaeus thoracicus* (Donovan) (HAWKESWOOD 1988)). *Chlorophorus* and *Aridaeus* also breed in the dead wood of a number of hard-wooded native tree or shrub species and the adults emerge in mid-summer to feed on the nectar and presumably pollen of a number of white-flowered native plants, most of which are not the same larval hosts (HAWKESWOOD 1988; HAWKESWOOD & DAUBER 1990). As part of the anthophilous life-style, both *C. curtisi* and *A. thoracicus* have evolved a mimetic colour pattern of orange or dark yellow with black transverse fasciae and other markings on the elytra (in particular) and head; the colour pattern mimics that of certain native wasps (HAWKESWOOD 1987; HAWKESWOOD 1988;

HAWKESWOOD & DAUBER 1990). (See colour illustrations of *C. curtisi* in HAWKESWOOD 1987 and *A. thoracicus* in HAWKESWOOD 1988). The colour pattern of *A. decora* is not as well developed as in *Chlorophorus* and *Aridaeus* but its dark colouration with the break-up markings of white/cream longitudinal lines on the elytra may have a cryptic function when the beetles are exposed and mating on the bark of their host plants and the total colour pattern may be mimicking a species of wasp or other insect of which we are presently unaware. However, despite the relative rarity of the species, such observations may not be readily forthcoming.

The suite of larval hosts and habitats in which *A. decora* is presently known to inhabit indicates that the beetle could have originated in rain forests and adapted to more xeric habitats as the Australian continent became more arid during the Tertiary. *A. decora* is known to breed in *Acacia melanoxylon* and *A. maidenii*, species which are often found growing at the margins of rain forest, as well as in *Acacia dealbata*, *A. sophorae* and *A. aulacocarpa* which grow in woodlands and dry sclerophyll forests. With further research a rain forest larval host plant may be discovered for *A. decora*.

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